Ecuador: defining and measuring multidimensional poverty, 2006-2010

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ABSTRACT

This paper provides new insights into the scope, measurement and analysis of multidimensional poverty in Ecuador and generates empirical evidence for the period 2006-2010. Multidimensional poverty is defined using a rights-based approach, on the basis of the provisions of the 2008 Constitution, but the analysis is limited to information gleaned from the Survey of Employment, Unemployment and Underemployment (ENEMDU) The findings show that multidimensional poverty decreased between 2006 and 2010; however, the level of inequality remained unchanged, with higher levels of poverty for rural inhabitants and women and among indigenous and Afro-Ecuadorian populations. Enhanced social protection and the promotion of better working conditions and public services are the priorities for abolishing poverty in Ecuador, but this requires political will and social commitment.

KEYWORDS

Poverty, measurement, social policy, economic, social and cultural rights, poverty alleviation, rural areas, women, ethnic and racial groups, economic indicators, social indicators, Ecuador

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I
Introduction

Poverty alleviation is at the top of the development agenda. But why is poverty alleviation important? And what does poverty mean? These are questions which as yet have no definitive answer. The first of them can be resolved with reference to Adam Smith's assertion that "no society can surely be flourishing and happy, of which the far greater part of the members are poor and miserable" (Smith, 1776, cited in Easterly, 2007, p. 756). This being so, any coherent development policy must offer a solution to poverty. But the second question is a more complex one. There is a broad range of literature that tries to define and measure poverty, and there are a great range of anti-poverty policies, which depend on the approach used to analyse the issue and the way poverty is defined.

This paper suggests some elements for use in defining poverty. First, there is the ideological discussion of who cares about poverty, and how to approach it; second, the choice between an absolute and a relative approach; and third, the choice of methodology. These three issues cannot be isolated from prevailing economic, social, cultural and political structures. Furthermore, the definition of poverty and the design of poverty alleviation policies are conducted through an interactive and iterative process involving a number of actors in any given society. In this paper, poverty governance is presented as comprising (i) the values, norms, processes and institutions needed to define poverty; (ii) the goals of anti-poverty policies; (iii) the willingness to pay for the required actions; and (iv) the choice of poverty alleviation policies. Regarding the methodological approach, although there is agreement on the need for a multidimensional understanding of poverty, it is still often measured one-dimensionally in most parts of the world. This means that further research and empirical analysis are needed to capture the multidimensional nature of poverty, in the relevant context.

This paper attempts to provide new insights into the scope, measurement and analysis of multidimensional poverty in Ecuador and to generate empirical evidence for the period 2006-2010. This period coincides with the inauguration of a left-leaning government (in 2007) and with the approval of a new political constitution by referendum. The new constitution (2008) introduced the concept of "good living" as the information basis for national development. However, a framework must now be built in order to analyse well-being and poverty under this new, people-centred development agenda.

The main research questions are, first, how poverty should be measured in Ecuador under the new constitution and, second, how poverty changed between 2006 and 2010. The rest of this paper is organized as follows. Section II introduces the context of Ecuador. Section III discusses what constitutes an understanding of poverty in the framework of good living. Section IV presents the methodology and data used for the measurement of multidimensional poverty. Section V presents the findings together with an exploration of poverty in Ecuador between 2006 and 2010. Section VI concludes with some final remarks to guide anti-poverty policy and future research.

II
Ecuador: the development framework and good living

Ecuador is a middle-income country with per capita gross national income (GNI) of US$ 3,970 at purchasing power parity (PPP) in 2009 (World Bank, n.d.). The total population is 14.3 million. In December 2010, unemployment was 6.1% and underemployment 47.1% (INEC, 2010a). A new constitution, the Montecristi Constitution[1] of 2008, was approved by referendum on 28 September 2008 with a 64% vote in favour across

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[1] Named after the city where it was adopted.

the country. It introduces the concept of *buen vivir* or *sumak kawsay* (good living) as the information basis for social justice. The constitution treats development as the dynamic interrelationship between the economic, political, socio-cultural and environmental systems (Constitución de la República del Ecuador, 2008, article 275). This development framework is based on human rights (political, civil, economic, social and cultural) and on the rights of nature (Larrea, 2010; Acosta, 2009 and 2010). A key defining feature of the new constitution is the role of the State in providing public goods and services and protecting rights. The constitution establishes the following rights as the basis for the concept of good living (Constitución de la República del Ecuador, 2008, articles 12 to 34):

1. permanent access to safe, adequate and nutritious food and water, preferably locally produced;
2. a healthy living environment;
3. unrestricted access to information and communication technology;
4. the right to construct and maintain a cultural identity, enjoy leisure time and benefit from scientific progress;
5. universal access to free education up to and including the third level of higher education;
6. safe, decent and appropriate housing and access to public spaces;
7. a healthy life and permanent access to medical care; and,
8. work and social protection.

Moreover, specific rights are established transversally for priority groups: the elderly, the young, migrants,[2] pregnant women, children and adolescents, disabled persons, the seriously ill, imprisoned persons and "consumers" (Constitución de la República del Ecuador, 2008, articles 35 to 55). These rights are complemented by the rights of communities, peoples and nationalities, rights of participation, rights of freedom, rights of nature, rights of protection and responsibilities of citizenship (Constitución de la República del Ecuador, 2008, articles 56 to 83).

The constitution establishes the National Development Plan as the basis for public policies, public budgeting and the spheres of competence of different levels of government (Constitución de la República del Ecuador, 2008, article 280). Public policies must be oriented towards good living and must guarantee rights (Constitución de la República del Ecuador, 2008, article 85). The National Development Plan 2009-2013, known as the National Plan for Good Living, completes the development framework in Ecuador (SENPLADES, 2009). This framework identifies public policy as a tool for generating and reproducing the conditions for good living on the basis of the National Development Plan and as part of a dynamic and interrelated process of development.

Social expenditure and economic growth

Central government social expenditure increased from 4.7% to 8.1% of gross domestic product (GDP) between 2006 and 2010 (see figure 1). Including social security transfers, social expenditure represented 12.6% of GDP in 2010. However, Ecuador remains below the 2007-2008 weighted average for Latin America (18%) (ECLAC, 2011b). The sectors accounting for the highest public expenditure as a percentage of GDP in 2010 were education (3.8%), health (2.0%) and social inclusion (1.9%).

In the case of Ecuador, the level of social expenditure does not correlate with economic growth, instead, there is a negative correlation between social expenditure and debt servicing (see figure 2), making it clear that each Government sets the social budget in accordance with its priorities in this regard. There are clear differences between periods: 1997-1999 (economic crisis with low social expenditure); 2001-2006 (economic recovery with constant social expenditure) and 2007 and after (economic stability with rising social expenditure).

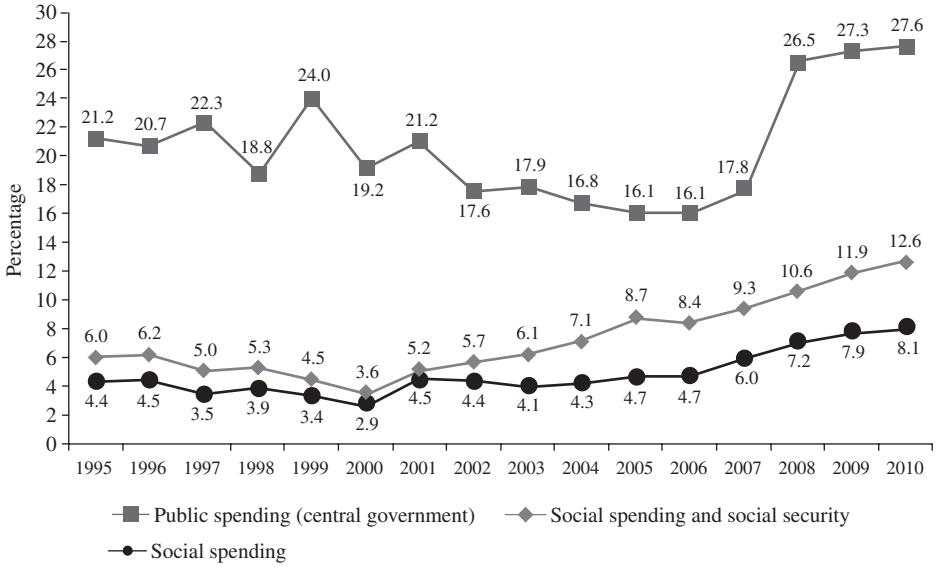
In real terms (2000 dollars), the level of social expenditure per capita increased from US$ 78 in 2006 to US$ 143 in 2010. Of this amount, US$ 67 (46.7%) went to education. However, in 2008 Ecuador had the second-lowest rates of public education expenditure per student at primary and secondary level in Latin America (ECLAC, 2011b).

On the other side of the budget, oil revenues rose from 7.8% of GDP in 2006 to 13.8% in 2010, partly owing to higher international oil prices during the period, but also because the Government changed the terms of contracts with private companies to provide more revenue for the State (BCE, 2011c). Tax revenues as a share of GDP increased from 11.7% to 13.7% between 2006 and 2010. Tax pressure (tax revenues as a percentage of GDP) in Ecuador is close to the Latin American average, but lower than in countries such as Brazil and Chile (ECLAC, 2011a). Moreover, the average tax pressure in Latin America is lower than in the Organisation for Economic Cooperation and Development (OECD) countries, where it was 34.8% in 2008 (OECD, 2011).

[2] Includes migrants (emigrants and immigrants), returnees, refugees and internal migrants.

FIGURE 1

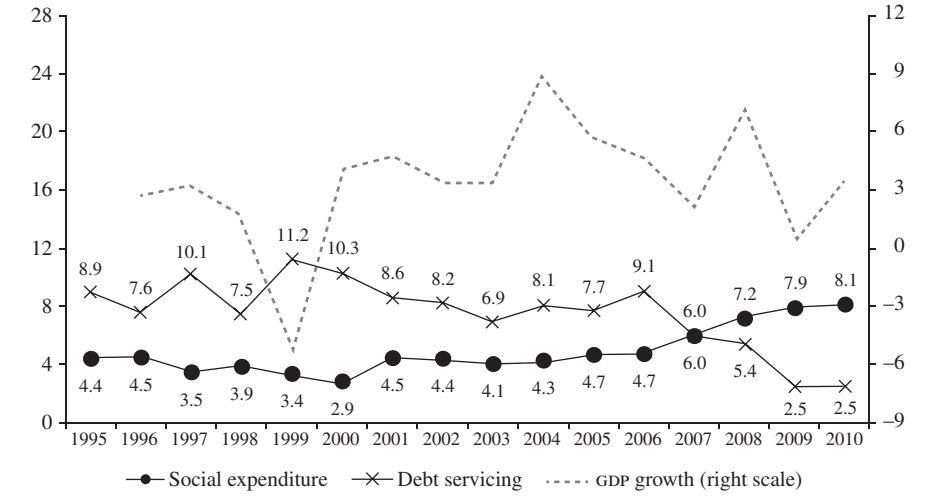
Ecuador: social expenditure, 1995-2010
(Percentages of GDP)



Source: prepared by the author on the basis of Central Bank of Ecuador, *Información estadística mensual*, No. 1786, Quito, 2000; *Boletín Anuario*, No. 32, Quito, 2010; *Información estadística mensual*, No. 1909, Quito, 2011; *Información estadística mensual*, No. 1911, Quito, 2011; and Ministry of Finance of Ecuador, "Budget Statistics" [online] http://finanzas.gob.ec/portal/page?_pageid=1965,1&_dad=portal&_schema=PORTAL.

FIGURE 2

Ecuador: public-sector expenditure indicators and economic growth, 1995-2010
(Percentages of GDP and percentage points)



Source: prepared by the author on the basis of Central Bank of Ecuador, *Información estadística mensual*, No. 1786, Quito, 2000; *Boletín Anuario*, No. 32, Quito, 2010; *Información estadística mensual*, No. 1909, Quito, 2011; *Información estadística mensual*, No. 1911, Quito, 2011; and Ministry of Finance of Ecuador, "Budget Statistics" [online] http://finanzas.gob.ec/portal/page?_pageid=1965,1&_dad=portal&_schema=PORTAL.

However, rising public expenditure in Ecuador between 2006 and 2010 led to primary fiscal deficits of 4.2% and 2.0% of GDP in 2009 and 2010, respectively. After the international crisis of 2009, the economy grew by 3.6% in 2010 and by 8.6% in the first quarter of 2011 (BCE, 2011b). For public expenditure to be sustainable, in any case, new financing options need to be identified so that the financial position of the public sector can be kept healthy.

III

Poverty: a multidimensional approach for Ecuador based on the right to good living

Poverty can be seen as a lack of well-being, and its alleviation is the prime objective of any meaningful development strategy. In the words of Andre Béteille: "It becomes more and more apparent that development and growth are not the same thing. Where growth leads to an increase of poverty and inequality, it could hardly be called development in any meaningful sense of the term" (Béteille, 2003, p. 4458). Poverty as a lack of well-being has an intrinsically political connotation (i.e. the definition of well-being). Poverty definitions are bound up with political power and ideological perspectives, which generate different policies for poverty reduction (Alcock, 1997). A definition of poverty has to accommodate the relationship between poverty and inequality. An absolute approach to poverty will immediately delink these concepts, while a relative approach will establish an indubitable and direct relationship (Béteille, 2003), treating poverty as an unacceptable level of inequality and viewing it as a structural social consequence. Peter Townsend is considered one of the most prominent advocates of a relative approach, and in his seminal work of 1979 he argues that "if poverty is relative cross-nationally…, then it is also relative historically. It is relative to time as well as to place" (Townsend, 1979, p. 52). He also discusses the role of institutions, norms, legislation and cultural conventions in the sense of relative deprivation.

Besides the ideological and absolute/relative discussions, different approaches are used to define and analyse poverty (the monetary, social exclusion, participatory, basic needs and capability approaches, among others). In this paper, a rights-based approach is proposed to link poverty analysis with the development framework in Ecuador. In this approach, the definition and measurement of poverty are based on the exercise of legally (socially) defined rights. This approach can be related to the capabilities approach in that both promote freedom/capabilities/conditions for individuals to achieve a life they value. A rights-based approach is proposed for the definition and measurement of poverty in Ecuador because the development framework, as laid down in the constitution and the National Development Plan, establishes good living as the main development objective, and this is defined by the set of rights presented in section II.

A rights-based approach requires a multidimensional analysis because rights cannot be understood either by an aggregate measure alone or by a one-dimensional approximation. Other arguments in favour of a multidimensional approach are that "(i) people value things besides material well-being; (ii) material well-being is only imperfectly correlated with other aspects of well-being; (iii) policy choices depend on which dimensions are prioritized; and (iv) the different dimensions of poverty reinforce one another" (White, Levy and Masters, 2002, p. 3).

It is important to include in this list the fact that markets do not exist for all valuable goods and services and that some markets are mostly imperfect (Bourguignon and Chakravarty, 2003; Ferro Luzzy, Flückiger and Weber, 2008). However, a multidimensional approach can be criticized on the grounds that a final aggregate measure loses relevant information. To meet this criticism, a multidimensional analysis of poverty must include an analysis of each dimension separately; indeed, this is one of the main virtues of this method. Accordingly, a multidimensional approach is meant not for international comparisons, but to create a better understanding of poverty in a specific context and then generate relevant information for policymakers. Furthermore, the selection of dimensions has to be context-specific and based on socially accepted development objectives (e.g., the good living rights approved by referendum in Ecuador).

IV
Methodology

The multidimensional poverty literature accepts as a basic measurement criterion that deprivation must be defined "as a shortfall from a threshold on each dimension of an individual's well-being" (Bourguignon and Chakravarty, 2003, p. 27). But there are different approaches to identifying a person as poor. A first option is to consider a person as poor if he or she falls below the poverty line in at least one dimension (Bourguignon and Chakravarty, 2003). This approach is called the union approach, but it has been criticized on the grounds that it may identify as poor some persons who are not truly poor. An alternative to the union approach is the intersection approach, whereby a person is defined as poor if he or she falls below the poverty threshold in all dimensions, but this may fail to identify individuals suffering from extensive deprivation in certain dimensions. Alkire and Foster (2009) propose a "dual cut-off" methodology, whereby a person is identified as poor when he or she falls below the poverty line in at least a predefined number of dimensions. But the number of dimensions stills remains an arbitrary decision.

A union approach is used in this paper from a rights-based perspective, as rights are not substitutable and so deprivation in respect of one right is enough for a person to qualify as poor. Besides, it is important to note that the criticism of the union approach applies only to a headcount ratio. In this paper, however, the aim is to identify the level of deprivation, meaning that the poverty gap (that is the difference between the current situation and the threshold) must be used instead of a headcount ratio. To study distribution among the poor, finally, a transformation of the poverty gap making it sensitive to distribution (i.e. severity) is used so that a better measure of the poverty level is obtained.

There is a broad range of literature about poverty measures, most following the approach of Amartya Sen, who established that to measure poverty the poor should be identified and an index constructed from information about them. From a one-dimensional perspective on poverty (e.g., monetary deprivation), Sen developed an index which is the weighted sum of poverty gaps (Sen, 1976). Following Sen's proposal, Anthony Shorrocks modified the index, adjusting the normalization condition in order to satisfy the transfer axiom and to provide continuity (Shorrocks, 1995). However, the most common measures of poverty (i.e. the poverty headcount and the poverty gap) are calculated following the Foster, Greer and Thorbecke (1984) parametric family of indices. These authors proposed an additively decomposable index based on Sen's index, but in the Foster, Greer and Thorbecke (FGT) indices poverty is aggregated using household shortfalls as weights (relative deprivation) instead of a rank order (Foster, Greer and Thorbecke, 1984). However, it is important to note that the most common poverty index (the poverty headcount index) fails to satisfy the monotonicity and transfer axioms, while the poverty gap index does not satisfy the transfer axiom (Sen, 1976).[3] These axioms are important because poverty is a matter of degree or intensity and not a simplified poor/non-poor dichotomy, meaning that a true measure of poverty must take account of distribution among the poor or the severity of poverty.

Data and dimensions

There is agreement among scholars that some of the structural determinants of poverty in Ecuador are: high levels of inequality, low human capital, low institutionalization, political unrest, the low productivity of the economy and irresponsible rent-seeking behaviour (Henstchel and Waters, 2002; Larrea, 2004; World Bank, 2005; Farrow and others, 2005). The crisis of 1999 has been extensively analysed for its effects on poverty and inequality (Larrea, 2004; World Bank, 2005).

The headcount of consumption deprivation increased from 39.3% in 1995 to 52.2% in 1999 before decreasing to 38.3% in 2006, while the headcount of people with basic needs deprivation fell over the same years from 53.6% to 50.6% and then to 45.8%. In the case of income deprivation, the headcount ratio decreased from 37.6% in 2006 to 32.8% in 2010. Over the same period, poverty in urban areas decreased from 25.9% to 22.5%, while in rural areas it decreased from 60.6% to 52.9%

[3] Amartya Sen explains the monotonicity and transfer axioms as follows: "Monotonicity Axiom: Given other things, a reduction in income of a person below the poverty line must increase the poverty measure. Transfer Axiom: Given other things, a pure transfer of income from a person below the poverty line to anyone who is richer must increase the poverty measure" (Sen, 1976, p. 219).

(INEC, 2010b). These figures show that one third of the population has income below the official poverty line (US$ 57.29 per capita per month in 2006) and half the population in rural areas suffers from monetary deprivation. In the case of basic needs deprivation, the headcount ratio decreased from 46.9% in 2008 to 41.8% in 2010 (INEC, 2010c).

As an alternative to one-dimensional measures, two partial approaches to multidimensional poverty have been applied in Ecuador. The first is an analysis applying a totally fuzzy and relative approach (Cuesta, 2008). However, that study does not analyse each dimension, and the dimensions are not clearly related to the development framework of Ecuador. The second is a poverty index based on unsatisfied basic needs, usually presented as a measure of multidimensional poverty. But the index is defined as a set of conditions rather than by measurements of deprivation in different dimensions, meaning it is a multivariate index but not a multidimensional approach.

In order to analyse poverty from a rights-based multidimensional approach, the good living rights are used to define dimensions of well-being. This option is proposed in order to link poverty analysis with the development framework established in the constitution and National Development Plan of Ecuador. From this perspective, each dimension is both cause and effect in a dynamic process of development, and deprivation in one or more dimensions is seen as a cause or consequence of poverty. However, different dimensions may be selected when other contexts are analysed. Thus, the methodology recognizes the specificities of Ecuador under the new constitution. The study focuses on certain "good living" rights as dimensions of well-being, on the basis of the information available. For a more comprehensive rights-based approach, political and civil rights and the rights of nature must be analysed. It is because of a lack of individual information that this study concentrates on just some of the rights of good living, which can be understood as economic, social and cultural rights. Other dimensions are left for future research.

The data are taken from the database of the National Survey of Employment, Unemployment and Underemployment in Urban and Rural Areas (ENEMDUR) conducted by the National Statistics and Census Institute (INEC), the figures being those for the December round between 2006 and 2010. Table 1 shows the variables and indicators $X^{l}_{i,k}$ constructed for $i=\{1,2,\ldots,n\}$ individuals, $j=\{1,2,\ldots,h\}$ households and $k=\{1,2,\ldots,m\}$ dimensions. Different indicators could arguably be used, but the list is limited by the data available and the choice of indicators is opportunistic rather than ideal. As the dimensions are conceptually interrelated, some indicators may be used in more than one dimension, but the proposed list tries to capture each dimension with at least one indicator. Furthermore, the selected indicators are based on regular questions included in the ENEMDUR, which allows for future replication and monitoring. Accordingly, the proposed methodology can be used on an ongoing basis for a more comprehensive analysis of poverty with improvements in policy design, monitoring and evaluation.

TABLE 1

Dimensions and indicators

Dimension	Variable	Indicator
Food and water	Access to public water supply system in the home	$X^{1}_{i,1} = \begin{cases} 1, \text{if yes} \\ 0, \text{if no} \end{cases}$
	Food expenditure capacity	$X^{2}_{i,1} = min\left\{1, \frac{\text{per capita income } j;i \in J}{\text{consumption poverty line}}\right\}$
Communication and information	Radio at home	$X^{1}_{i,2} = \begin{cases} 1, \text{if yes} \\ 0, \text{if no} \end{cases}$
	Telephone at home	$X^{2}_{i,2} = \begin{cases} 1, \text{if yes} \\ 0, \text{if no} \end{cases}$
	Television at home	$X^{3}_{i,2} = \begin{cases} 1, \text{if yes} \\ 0, \text{if no} \end{cases}$

Table 1 (continued)

Dimension	Variable	Indicator
Communication and information	Computer at home	$X_{i,2}^{4} = \begin{cases} 1, \text{if yes} \\ 0, \text{if no} \end{cases}$
	Internet at home	$X_{i,2}^{5} = \begin{cases} 1, \text{if yes} \\ 0, \text{if no} \end{cases}$
Education	Educational attainment	$X_{i,3} = \min\left\{1, \frac{\text{education}_i}{\text{Es}_i}\right\}$; if age: > 4 $Es_i = \begin{cases} \max\{0; \text{ages up to } 6\}; \text{or} \\ 17; \text{if age} > 22, \text{or} \\ \text{education}_i; \text{if all} \begin{cases} \text{education}_i > 9; \\ \text{education}_i \leq 17; \text{and} \\ \text{do not want to study} \end{cases} \end{cases}$
Housing	Own home	$X_{i,4}^{1} = \begin{cases} 1; \text{if owned home} \\ 0{,}5; \text{if courtesy or employer-provided housing} \\ 0; \text{if rented or other} \end{cases}$
	Flooring quality of home	$X_{i,4}^{2} = \begin{cases} 1; \text{if adequate} \\ 0; \text{if inadequate} \end{cases}$
	People per room in home	$X_{i,4}^{3} = \begin{cases} 1; \text{if } P_{room} \leq 2 \\ 3\text{-}P_{room}; \text{if } 2 < P_{room} < 3 \\ 0; \text{if } P_{room} \geq 3 \end{cases}$ $P_{room} = \frac{\text{people in the home}_{j;i \in J}}{\text{bedrooms in the home}_{j;i \in J}}$
	Electricity in home	$X_{i,4}^{4} = \begin{cases} 1; \text{if public service} \\ 0{,}5; \text{if private source} \\ 0; \text{if none} \end{cases}$
	Access to sewerage system in home	$X_{i,4}^{5} = \begin{cases} 1; \text{if sewerage} \\ 0{,}5; \text{if other system} \\ 0; \text{if none} \end{cases}$
	Access to rubbish disposal at home	$X_{i,4}^{6} = \begin{cases} 1; \text{if public service} \\ 0{,}5; \text{if private service} \\ 0; \text{if none} \end{cases}$
Health	Health insurance	$X_{i,5}^{1} = \begin{cases} 1, \text{if yes} \\ 0, \text{if no} \end{cases}$
	Self-coverage capacity	$X_{i,5}^{2} = \min\left\{1, \frac{\text{per capita income}_{j;i \in J}}{\text{minimum standard budget}}\right\}$

Table 1 (concluded)

Dimension	Variable	Indicator
Work and social security	Work and satisfaction with work	$X_{i,6}^{11} = \begin{cases} 1, \text{si} \begin{cases} \text{if working and satisfied, or} \\ \text{do not want to work} \end{cases} \\ \frac{5}{6}, \text{if working and somewhat satisfied} \\ \frac{2}{3}, \text{if working but not satisfied} \\ \frac{1}{2}, \text{if working but dissatisfied} \\ 0, \text{if not working} \\ 0, \text{if both} \begin{cases} \text{working, and} \\ \text{age <15} \end{cases} \end{cases}$
	Wanting more work	$X_{i,6}^{12} = \begin{cases} 1, \text{if yes} \\ 0, \text{if no} \end{cases}$
	Social security	$X_{i,6}^{2} = \begin{cases} 1, \text{if yes} \\ 0, \text{if no} \end{cases}$

Source: prepared by the author.

All the indicators have a maximum value of 1 (threshold attained) and a minimum of 0 (total deprivation). The indicators are defined between 0 and 1 to reduce discontinuity problems, but are limited by the information available. For categorical data, different levels are set as equidistant (i.e. the indicators are ordinal). Aggregation at the level of dimensions follows the next general function: $X_{i,k} = g_k\left(X_{i,k}^1,\ldots,X_{i,k}^p\right)$ for the variables $1=\{1,\ldots, p\}$, where the function $g_k(\cdot)$ is specific to each dimension k.

To identify the level of deprivation for each dimension, reformulation of the indices is carried out using the formula $\hat{X}_{i,k} = 1 - X_{i,k}$, where the deprivation level $\hat{X}_{i,k}$ is interpreted as the relative gap between the individual level of X_k and the deprivation threshold $z_k = 1$, with a maximum value of 1 (total deprivation) and a minimum of 0 (no deprivation).

V
Findings

This section presents deprivation in each dimension. For the sake of completeness, headcount ratios are presented at the indicator level as well as at the dimension level. Deprivation gaps (levels of deprivation) are also presented at the dimension level for different regions and demographic groups. To gauge inequality (i.e. for a relative perspective), the change in the ratio with respect to the national level is presented as well. Lastly, multidimensional poverty is analysed by region and demographic group.

1. Food and water

This dimension is defined by two variables. The first is measured at the household level and is defined as deprivation in the public water supply to the home. The threshold is defined on the basis of the responsibility of the State (municipal governments) to provide a water supply (Constitución de la República del Ecuador, 2008, article 264). The second variable measures monetary (i.e. income) deprivation as a proxy for food deprivation

(the threshold approximates to food deprivation, as it is the official extreme poverty line). Table 2 shows the national headcount of deprived persons. The percentage of the population deprived of a public supply of water to the home decreased from 32.1% in 2006 to 27.9% in 2010, while the percentage of the population with monetary deprivation fell from 16.9% to 13.5% over the same period. At the dimension level, one third of the population suffers from food and water deprivation; however it is important to note that, on average, 1% of the population overcomes this deprivation each year.

Table 3 presents the deprivation gap at the dimension level. The figures show the average gap for different regions and demographic groups. The table makes it clear that deprivation in this dimension is particularly an issue in rural areas (especially in rural coastal and rural Amazon areas), while a smaller deprivation gap is found in the cities of Cuenca, Quito and Machala.

The deprivation gap for food and water decreased between 2006 and 2010 in all regions and for all demographic groups, with the exception of the indigenous population, for which the deprivation gap remained unchanged. Because the two variables are measured at the household level, it is not possible to disaggregate the deprivation gap by gender or age. Where relative deprivation is concerned (that is, the ratio of the deprivation gap of a given group to the national level), the deprivation gap for the indigenous demographic group rose from 2.1 times to 2.5 times the overall national gap between 2006 and 2010. Additionally, there were increases (that is higher relative deprivation) in rural coastal areas, the urban Sierra and the Amazon. The reduction in food and water deprivation between 2006 and 2010 was primarily driven by the cities of Cuenca and Machala and urban coastal areas. Additionally, the monetary deprivation gap increased for indigenous people and the urban Sierra (including Quito) and Amazon regions during this period.

TABLE 2

Ecuador: deprivation headcounts, 2006-2010
(Percentages of the population)

Variable/dimension	2006	2007	2008	2009	2010
Water in the home	32.1	28.7	28.8	29.0	27.9
Monetary	16.9	16.5	16.2	15.8	13.5
Food and water	**38.4**	**35.7**	**36.0**	**36.5**	**34.2**
Radio	27.2	28.9	28.0	31.8	32.4
Telephone [a]	68.9	66.0	64.4	65.4	63.0
Television	19.7	17.5	15.5	15.5	13.0
Computer	80.4	79.6	76.8	75.9	71.8
Internet	...	...	93.2	92.4	88.2
Communication [b]	**73.2**	**70.9**	**69.2**	**71.3**	**69.8**
Education	**66.1**	**64.6**	**64.8**	**66.0**	**65.4**
Home	27.6	32.6	30.9	32.6	31.3
Flooring	30.1	28.9	28.1	25.7	23.4
Bedrooms	50.1	50.2	48.5	46.7	43.6
Electricity	4.9	4.6	4.4	6.0	4.6
Sewerage	51.1	48.0	45.3	45.1	43.5
Rubbish disposal	31.3	29.8	28.7	29.1	25.4
Housing	**81.2**	**81.8**	**80.5**	**79.7**	**77.8**
Health insurance	79.7	79.7	78.1	77.2	69.2
Monetary	66.0	65.3	64.8	66.9	63.3
Health	**88.5**	**88.2**	**87.6**	**87.5**	**84.9**
Satisfaction with work	23.0	28.6	27.7	27.9	24.7
Wanting more work	42.0	31.9	26.6	26.8	21.4
Work [c]	36.8	35.3	32.5	33.1	28.8
Social security	84.5	83.2	82.2	80.7	79.4
Work and social security	**90.3**	**88.7**	**87.2**	**86.0**	**84.0**

Source: prepared by the author on the basis of the National Survey of Employment, Unemployment and Underemployment in Urban and Rural Areas (ENEMDUR), December rounds.

[a] Does not include mobile phone.
[b] Does not include computer or Internet.
[c] Aggregates "satisfaction with work" and "wanting more work".

TABLE 3

Ecuador: deprivation gap by dimension, 2006 and 2010
(Percentages)

Region/group	Food and water		Communication [a]		Education		Housing		Health		Work and social security	
	2006	2010	2006	2010	2006	2010	2006	2010	2006	2010	2006	2010
National	19.2	16.4	38.6	36.1	34.8	34.0	26.6	22.8	57.1	50.2	53.1	47.4
Quito	1.7	1.0	17.1	12.7	24.4	23.3	15.0	10.9	39.8	36.2	47.4	37.0
Guayaquil	7.3	6.6	31.7	30.7	29.3	26.8	17.4	16.3	49.4	43.8	53.1	47.4
Cuenca	3.2	0.5	15.5	13.0	24.6	24.9	12.7	10.3	43.2	40.4	48.6	37.9
Machala	8.8	3.6	38.1	36.2	31.7	28.6	17.2	13.5	57.8	47.1	56.4	48.7
Urban Sierra	6.6	6.0	24.7	22.9	29.3	30.3	15.2	13.3	52.2	50.6	51.6	46.2
Urban coast	10.7	9.0	40.2	39.3	33.4	32.4	20.4	19.0	61.6	51.0	55.4	52.2
Urban Amazon	4.5	7.7	25.2	30.3	26.9	28.2	16.2	18.2	49.6	52.8	49.7	46.2
Rural Sierra	39.4	33.0	50.4	47.5	45.1	45.0	41.3	33.6	66.3	64.6	56.2	49.9
Rural coast	48.9	42.4	62.7	58.6	48.8	47.5	49.6	43.0	69.7	48.4	54.3	50.3
Rural Amazon	46.2	40.9	66.7	55.6	37.3	36.0	50.7	40.4	66.4	66.3	50.9	45.7
Male	…	…	…	…	33.9	33.1	…	…	56.5	50.0	53.7	45.7
Female	…	…	…	…	35.7	34.9	…	…	57.7	50.5	52.5	49.0
Children	…	…	…	…	4.8	3.1	…	…	66.8	59.7	51.0	48.0
Adolescents	…	…	…	…	9.9	7.1	…	…	63.8	59.3	55.7	50.9
Youth	…	…	…	…	34.1	28.9	…	…	55.4	49.8	56.5	49.5
Adults	…	…	…	…	49.6	47.8	…	…	49.5	44.3	51.8	45.4
Elderly	…	…	…	…	74.3	71.4	…	…	52.9	40.5	50.0	45.5
Indigenous	40.9	40.9	59.0	59.2	47.3	46.5	45.5	41.5	72.0	71.5	60.2	51.1
White	16.7	10.1	33.3	26.9	31.6	27.8	23.4	15.7	50.6	43.3	51.3	44.5
Mestizo	17.4	13.1	36.8	32.6	33.7	32.1	24.8	20.2	55.9	48.6	52.6	46.6
Afro-Ecuadorian	21.6	16.4	46.2	42.4	39.8	35.6	34.1	25.1	63.8	55.0	53.9	50.2

Source: prepared by the author on the basis of the National Survey of Employment, Unemployment and Underemployment in Urban and Rural Areas (ENEMDUR), December rounds.

[a] Does not include computer or Internet.

2. Communication and information

Deprivation in the dimension of communication and information is measured by five variables at the household level: ownership of a radio, telephone, television and computer, and Internet access. However, the possession of these means of communication does not reflect true access to and use of them, nor does it indicate access to information or tell us about the quality of any information accessed. A comprehensive analysis of these criteria is indeed necessary, but exceeds the scope of this study. Table 2 shows the deprivation headcount for each variable and for the dimension. Deprivation declined between 2006 and 2010 for all the variables expect radio. In 2010, the highest percentages of deprivation were for the Internet (88.2%), computers (71.8%) and the telephone (63.0%), while the lowest deprivation ratios were for radio (32.4%) and television (13.0%).

Table 3 shows the deprivation gap at the dimension level by region. The deprivation gap decreased in all domains between 2006 and 2010. Deprivation is highest in the rural Amazon and on the coast, especially in rural areas. However, the relative deprivation gap between the rural Amazon and the national level decreased from 1.7 to 1.5 between 2006 and 2010. At the country level, the deprivation gap was 36.1% in 2010, meaning that on average each household had one out of three means of communication (mainly television, followed by radio). Differences in the deprivation gap by demographic group are similar to those for the previous dimension.

Indigenous persons have a higher deprivation gap. The relative deprivation gap for indigenous people increased from 1.5 to 1.6 times the national level between 2006 and 2010. The ratio is similar for Afro-Ecuadorians (1.2) but lower for mestizos (for whom it declined from 1.0 to 0.9 over the period) and whites (down from 0.9 to 0.7).

3. Education

An educational attainment index is used to identify educational deprivation. This index compares a person's years of education with the desired number of years (the threshold) for his or her age. Desirable or expected years of education are defined as a function of age. The desired number of years of education is 0 for those aged under 7, while the maximum number is set at 17 (complete primary, secondary and tertiary education). However, a person is defined as not deprived if he or she has more than nine years of education (complete primary education) and does not wish to study more.

Average years of education for the population aged over 5 increased from 7.4 in 2006 to 7.9 in 2010. Table 4 shows average years of education and average expected years of education by age group. Average years of education increased between 2006 and 2010 for all age groups. The group with the largest improvements in its level of educational attainment between 2006 and 2010 were the young, with the proportion attaining the expected years of education rising from 65.9% in 2006 to 71.1% in 2010.

TABLE 4

Ecuador: average education and average expected education by age group, 2006 and 2010
(Years)

Age group	2006		2010	
	Education	Expected education	Education	Expected education
Children	2.8	2.2	3.1	2.4
Adolescents	8.0	8.4	8.4	8.5
Youth	10.0	15.4	10.8	15.4
Adults	8.5	16.9	8.7	16.8
Elderly	4.4	17.0	4.8	17.0

Source: prepared by the author on the basis of the National Survey of Employment, Unemployment and Underemployment in Urban and Rural Areas (ENEMDUR), December rounds.

Despite the large improvements mentioned, the percentage of the population showing some level of educational deprivation was still over 65.4% in 2010 (66.1% in 2006). Rural areas show the largest deprivation gaps (see table 3). There is a difference in gaps between females and males, with the educational deprivation gap being 1.1 times as great on average for the former as for the latter. This ratio remained unchanged between 2006 and 2010, as did the ratios between the deprivation gaps of indigenous people and rural areas and the national level.

4. Housing

To measure housing deprivation, six variables are considered. The first concerns home ownership, with an individual being considered as not deprived if his or her household owns the home they live in and deprived if the home is rented.[4] The second variable identifies the quality of the flooring, following the ENEMDUR criterion.[5] The third variable measures the number of people per bedroom in the home. An individual is considered non-deprived if there are two people or fewer per room and deprived if there are three or more people per room. An intermediate level of more than two but less than three people per room on average is also established.[6] Lastly, access to electricity, a sewage system and rubbish disposal are measured at the household level.[7]

Table 2 shows the percentage of the population with deprivations in the housing dimension. One third of the population do not own a home. There is no clear trend for this indicator during the period. In the case of flooring quality, the deprivation headcount decreased from 30.1% in 2006 to 23.4% in 2010. Almost half the population live in a home with more than two people per bedroom. However, this indicator decreased from 50.1% to 43.6% during the period. Electricity provided via the public grid covers almost all the population. Meanwhile, public sewerage and public rubbish disposal services covered 56.5% and 74.6%, respectively, of the population in 2010. Lastly, at the dimension level, the

[4] The threshold is defined as a household owning its home in accordance with article 30 of the constitution, which provides for a right to housing irrespective of a person's financial and social situation (Constitución de la República del Ecuador, 2008, article 30). Renting a home affects disposable income, so that the ability to do so depends on a household's financial situation.

[5] Flooring is considered adequate if it has been treated for this use.

[6] The threshold is set at the same level as in the official index of unsatisfied basic needs.

[7] The threshold is set in consideration of the obligation of the State to provide these services (Constitución de la República del Ecuador, 2008, articles 264 and 314).

proportion of deprived people decreased from 81.2% in 2006 to 77.8% in 2010.

In 2010, the deprivation gap at the national level was 22.8%, meaning that on average each individual was deprived on more than one variable. Rural areas have a larger deprivation gap in housing. However, relative deprivation decreased from 1.6 to 1.5 times the national level in the rural Sierra between 2006 and 2010. In the case of the rural Amazon, the ratio decreased from 1.9 to 1.8, while it remained unchanged for the rural coast (1.9). The urban Amazon is the only region that showed higher deprivation in 2010 than in 2006. This can be explained by rising demand for housing that cannot be satisfied.

Indigenous and Afro-Ecuadorian populations have larger deprivation gaps than other ethnic groups. In the case of indigenous people, the relative deprivation gap increased from 1.7 to 1.8 times the national level between 2006 and 2010, while the ratio for the Afro-Ecuadorian population decreased from 1.3 to 1.1 over the same period.

5. Health protection

Two variables are used to analyse health protection. The first identifies whether individuals have health insurance (public or private), and they are defined as deprived if they have none. The second variable is a measure of financial self-protection, going by the official basic goods and services basket. Individuals are considered not deprived if the income of their household is equal to or higher than the cost of the relevant basic basket,[8] so that they can afford to cover unpredictable expenses. It is important to mention that public health care is available to the whole population in Ecuador. However, waiting times and other uncovered expenses limit access and quality. Health status and health care need specific analysis to identify a more comprehensive level of health deprivation and inequality.

The percentage of the population without health insurance was 69.2% in 2010. This share decreased by more than 10 percentage points between 2006 and 2010. In the case of financial self-protection, 63.3% of the population could not afford the basic basket of goods and services in 2010. At the dimension level, 84.9% of the population lacks some element of health protection. The main driver of these deprivation figures is the low coverage of the social security system. The deprivation gap is below 50% only in the main cities (Quito, Cuenca, Guayaquil and Machala). The level of deprivation decreased in all regions between 2006 and 2010 except the urban Amazon, where it increased from 49.6% to 52.8%. The largest reductions were in the coastal region, especially the rural coast, where the deprivation gap decreased from 69.7% to 48.4%. This is connected with access to public health insurance from the Ministry of Public Health.

Indigenous and Afro-Ecuadorian populations have larger deprivation gaps, a result of both more limited access to health insurance and lower incomes. Children show higher levels of deprivation, though mothers and infants are provided with free care by the Ministry of Public Health. It is important to note that people requiring priority protection receive special public health care to meet their specific needs. The largest reduction in deprivation between 2006 and 2010 was in the elderly group, where it declined by more than 10 percentage points during the period. This effect can be explained partly by the extension of public health insurance coverage, but also by higher incomes thanks to old age benefits.

6. Work and social security

Work deprivation is measured by two variables. The first, satisfaction with work, measures access to work and the level of satisfaction it provides,[9] identifying as deprived anyone who wants to work but who is jobless, and anyone younger than 15 years old who is working.[10] Social security deprivation is measured by a variable identifying as deprived anyone who is not a member of any social security scheme.[11]

Table 2 shows the deprivation headcount for each variable. One quarter of the population are deprived in terms of work satisfaction, meaning that they want to work but are not working or that they are dissatisfied with their work. This indicator increased overall between 2006 (23.0%) and 2010 (24.7%), but was actually lower

[8] The cost of the basic basket for a household of four people with 1.6 earners was US$ 555.27 as of April 2011 (INEC, 2011), and it is adjusted by the consumer price index (CPI).

[9] Satisfaction is determined by the individual's own perception on a scale from satisfied to dissatisfied (see table 1). In 2010, 31% of the employed population were dissatisfied because of their income, 26% because of poor career opportunities and 20% because of job instability.

[10] The legal minimum working age is 15 (Código de la Niñez y Adolescencia, 2003, article 82).

[11] Ecuador has social security schemes under three different institutes: the Ecuadorian Social Security Institute (IESS), the Armed Forces Social Security Institute (ISSFA) and the National Police Social Security Institute (ISSPOL). The IESS has three different regimes: a general regime, a voluntary regime and a rural regime.

in 2010 than in 2007 (28.6%). The main reason for the lower deprivation headcount in 2006 was a higher level of self-reported satisfaction. The proportion of satisfied workers decreased from 71.3% in 2006 to 63.9% in 2007 before rising back to 68.9% in 2010. However, the work satisfaction deprivation gap (level of deprivation) decreased from 15.8% to 13.9% over the same period. The percentage of workers wanting more work decreased from 42.0% in 2006 to 21.4% in 2010, and the aggregate work deprivation headcount decreased from 36.8% to 28.8% over the same period. In the case of social security, the deprivation headcount (percentage of the population without social security) decreased from 84.5% in 2006 to 79.4% in 2010. The total deprivation headcount is higher for this dimension than for the previous one. The percentage of the population with some level of deprivation in work and social security was 84% in 2010, showing that this dimension requires special government attention and an increase in the coverage of the social security system.

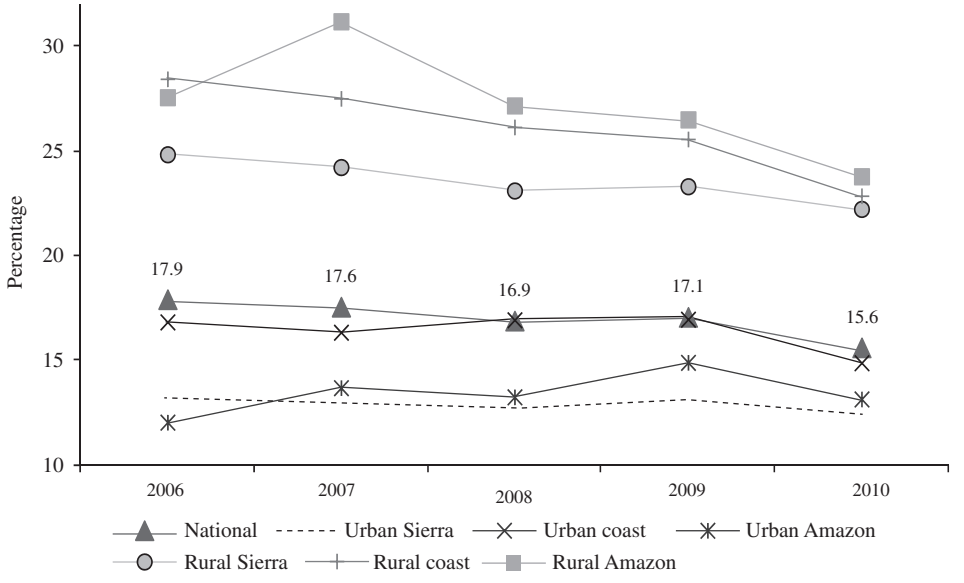
The deprivation gap is similar in all regions and decreased by 5.7 percentage points between 2006 and 2010. The indigenous population has the largest deprivation gap (see table 3). Deprivation among indigenous people held steady at 1.1 times the national level between 2006 and 2010, but increased from 1.0 to 1.1 for Afro-Ecuadorians over the same period. Lastly, the work deprivation gap for indigenous people decreased from 32.7% in 2006 to 15.6% in 2010.

7. Multidimensional poverty

Multidimensional poverty in Ecuador (see figure 3) decreased from 17.9% in 2006 to 15.6% in 2010. This reduction cannot be interpreted in the same way as a headcount ratio (i.e. a reduction in the number of poor people), but the important thing is that it shows that the level (severity) of multidimensional poverty in the country has fallen. Between 2006 and 2010, the level of multidimensional poverty decreased at an average rate of 3.2% per year. Figure 3 presents the pattern of multidimensional poverty between 2006 and 2010. Although the trend shown is similar to that for poverty as measured by income, multidimensional poverty is less strongly affected by economic shocks (such as the 2009 international crisis). Besides being a measure of the severity of poverty, this indicator captures a reduction not just in the number of poor people but in the level of poverty, especially among the poorest.

FIGURE 3

Ecuador: poverty and deprivation, 2006-2010
(Severity of poverty (squared gap))



Source: prepared by the author on the basis of the National Survey of Employment, Unemployment and Underemployment in Urban and Rural Areas (ENEMDUR) and National Statistics and Census Institute (INEC), *Evolución del mercado laboral*, Quito, 2010.

Table 5 presents figures for multidimensional poverty between 2006 and 2010 by region and demographic group. The regions with the highest levels of multidimensional poverty are rural areas. Despite the fact that multidimensional poverty decreased by 2.3 points (12.8%) in rural areas between 2006 and 2010, relative poverty was still 1.4 times the national level in the rural Sierra, 1.5 times in rural coastal areas and 1.5 times in the rural Amazon. Where urban areas are concerned, the coastal region shows the highest levels of multidimensional poverty, while Quito and Cuenca have the lowest levels. It is important to note that multidimensional poverty remained unchanged[12] in the urban Amazon between 2006 and 2010, which ties in with the increasing deprivation levels (gaps) in all dimensions other than work and social security.

[12] The difference between 2006 and 2010 is not significant (t-value = 0.4594).

TABLE 5

Ecuador: multidimensional poverty by region and group, 2006-2010
(Percentages)

	Multidimensional poverty					Absolute share					Relative share				
	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010
National	17.9	17.6	16.9	17.1	15.6	17.9	17.6	16.9	17.1	15.6	100.0	100.0	100.0	100.0	100.0
Quito	10.0	9.5	9.1	9.3	8.3	1.2	1.1	1.0	1.1	0.9	6.5	6.2	6.1	6.2	6.1
Guayaquil	13.3	12.6	11.8	12.7	11.7	2.2	2.0	1.9	2.0	1.9	12.0	11.6	11.3	12.0	12.1
Cuenca	10.2	9.3	8.3	9.1	8.5	0.3	0.2	0.2	0.3	0.2	1.5	1.4	1.3	1.5	1.5
Machala	15.5	15.0	14.0	13.5	12.5	0.3	0.3	0.2	0.2	0.2	1.5	1.5	1.5	1.4	1.4
Urban Sierra	13.2	13.0	12.8	13.1	12.5	1.8	1.8	1.8	1.8	1.7	10.1	10.2	10.4	10.6	11.0
Urban coast	16.8	16.3	16.9	17.0	14.9	3.2	3.1	3.2	3.2	2.8	18.0	17.8	19.2	19.0	18.2
Urban Amazon	12.0	13.7	13.3	14.9	13.2	0.2	0.2	0.2	0.3	0.2	1.0	1.2	1.3	1.5	1.4
Rural Sierra	24.9	24.2	23.1	23.3	22.2	4.2	4.2	4.0	4.0	3.8	23.5	23.7	23.4	23.3	24.3
Rural coast	28.5	27.5	26.2	25.6	22.9	3.7	3.6	3.4	3.3	3.0	20.7	20.4	20.2	19.5	19.0
Rural Amazon	27.6	31.2	27.2	26.5	23.8	0.9	1.0	0.9	0.9	0.8	5.1	5.9	5.4	5.0	5.2
Male	18.0	17.3	16.6	16.7	15.4	8.9	8.6	8.2	8.2	7.6	49.8	48.8	48.3	48.3	48.7
Female	17.9	17.8	17.2	17.4	15.8	9.0	9.0	8.7	8.8	8.0	50.2	51.2	51.7	51.7	51.3
Children	17.4	17.1	16.2	16.4	14.8	4.3	4.3	3.8	3.6	3.2	23.7	24.4	22.7	21.1	20.2
Adolescents	17.0	16.5	15.8	16.1	14.7	2.3	2.2	2.1	2.1	1.9	12.8	12.4	12.5	12.6	12.3
Youth	17.0	16.9	16.1	16.1	14.5	3.3	3.2	3.1	3.1	2.7	18.7	18.2	18.3	18.3	17.6
Adults	18.0	17.7	17.1	17.3	15.9	6.2	6.3	6.1	6.3	5.9	34.8	35.7	36.2	36.6	37.7
Elderly	23.4	22.4	21.9	21.8	19.9	1.8	1.6	1.7	1.9	1.9	9.9	9.3	10.3	11.4	12.3
Indigenous	28.5	28.1	27.4	27.4	27.0	2.1	2.0	2.0	1.9	1.8	11.6	11.4	11.7	10.9	11.7
White	15.9	16.2	15.4	14.4	12.3	0.9	1.2	1.1	1.0	0.4	4.8	6.6	6.5	5.7	2.4
Mestizo	17.0	16.6	15.9	16.4	14.2	14.2	13.5	12.8	13.4	11.3	79.2	77.0	75.7	78.5	72.4
Afro-Ecuadorian	20.8	20.3	19.8	18.3	17.2	0.8	0.8	1.0	0.8	0.8	4.3	4.5	6.0	4.4	5.1
Montubio	…	…	…	…	22.4	…	…	…	…	1.3	…	…	…	…	8.4
Other	15.0	21.4	21.6	25.1	17.4	0.0	0.1	0.0	0.1	0.0	0.1	0.6	0.1	0.4	0.1

Source: prepared by the author on the basis of the National Survey of Employment, Unemployment and Underemployment in Urban and Rural Areas (ENEMDUR), December rounds.

The highest levels of multidimensional poverty are found among the indigenous population and Afro-Ecuadorians. While relative poverty among Afro-Ecuadorians decreased from 1.2 times the national level in 2006 to 1.1 in 2010, the relative level for indigenous people increased from 1.6 times the national level in 2006 to 1.7 in 2010, meaning that despite the absolute reduction in the level of multidimensional poverty, the indigenous population was worse off in 2010 than in 2006 in terms of equity.

In terms of relative shares of multidimensional poverty at the national level (table 5), the coast accounted for 50.6% of the national multidimensional poverty level in 2010, both by number of poor people and poverty level. Rural areas, and especially the rural Amazon, have the highest levels of poverty but a lower absolute number of poor. If the figures are broken down by age group, children and adults together accounted for 57.9% of multidimensional poverty in 2010 (20.2% and 37.7%, respectively), both by number of poor people and by poverty level, while the elderly are the group with the highest level of multidimensional poverty. Lastly, decomposition by ethnic group shows that the indigenous population accounted for 11.7% of all multidimensional poverty nationwide in 2010 by poverty level, while the mestizo population represented 72.4% of all multidimensional poverty owing to the absolute number of poor.

An ordinary least squares (OLS) regression (see table 6) shows that multidimensional poverty in Ecuador is strongly associated with ethnicity and rural residence. Controlling by household characteristics, region and year, indigenous persons show levels of multidimensional poverty 7.6 points higher than persons who self-identify as white or mestizo, while Afro-Ecuadorians have a level of multidimensional poverty 1.9 points higher. With regard to gender, the level of multidimensional poverty among women is 0.5 points higher than among men. This shows the existence of ethnic and gender inequalities, but on a different level. It is important to note that the coefficients remain unchanged when the regression is not controlled for time effects, which means that despite the reduction in the level of multidimensional poverty, the level of inequality did not change between 2006 and 2010.

The household characteristics that show the strongest relationships with the level of multidimensional poverty are the household dependency ratio[13] and single-parent households. One additional point on the household dependency ratio is associated with a multidimensional poverty level that is 0.6 points higher. A single-parent household has, on average, a level of multidimensional poverty 0.7 points higher than that of a household with two parents. These relationships show the importance of social protection policies for households with vulnerable populations. Lastly, regional inequalities are the main drivers of multidimensional poverty, as living in a rural area is associated with a multidimensional poverty level between 9.1 and 13.7 points higher than that in Guayaquil.

[13] The household dependency ratio is defined as the number of children, adolescents and elderly people divided by the number of young people and adults.

TABLE 6

Ecuador: multidimensional poverty, regression using ordinary least squares (OLS)

Multidimensional poverty	I	II	III	IV
Indigenous	0.11663 *	0.11205 *	0.07583 *	0.07575 *
Afro-Ecuadorian	0.03333 *	0.03182 *	0.01849 *	0.01922 *
Child	-0.00616	-0.01185 **	-0.02303 *	-0.02346 *
Adolescent	-0.00872 ***	-0.01489 *	-0.02450 *	-0.02470 *
Youth	-0.00836 *	-0.00666 *	-0.00779 *	-0.00800 *
Elderly	0.04601 *	0.00818 **	0.01732 *	0.01764 *
Female	0.00378 *	0.00365 *	0.00532 *	0.00526 *
Married	0.00708 *	0.00717 *	0.00293 *	0.00282 *
Household dependency ratio		0.00863 *	0.00611 *	0.00604 *
Female head of household		-0.01038 *	0.00266 **	0.00356 *
Age of head of household		0.00001	-0.00034 *	-0.00032 *
Single-parent household		0.00901 *	0.00713 *	0.00669 *

Table 6 (concluded)

Multidimensional poverty	I	II	III	IV
Quito			-0.03553 *	-0.03555 *
Cuenca			-0.03346 *	-0.03327 *
Machala			0.01646 *	0.01646 *
Urban Sierra			0.00083	0.00087
Urban coast			0.03889 *	0.03884 *
Urban Amazon			0.00489	0.00506
Rural Sierra			0.00489	0.09135 *
Rural coast			0.13571 *	0.13570 *
Rural Amazon			0.11904 *	0.11935 *
2007				-0.00409 *
2008				-0.01110 *
2009				-0.00896 *
2010				-0.02392 *
Constant	0.15623 *	0.14910 *	0.13473 *	0.14334 *
Observations	395 280	395 280	395 280	395 280
R^2	0.09140	0.11070	0.34640	0.35170

Source: prepared by the author on the basis of the National Survey of Employment, Unemployment and Underemployment in Urban and Rural Areas (ENEMDUR), December rounds.

* 1% significance; ** 5% significance; *** 10% significance.

VI
Concluding remarks

The dimensions with the highest levels of deprivation in Ecuador are work, social security and health protection. Accordingly, a priority for poverty alleviation in Ecuador is to reform the social protection system, increasing its level of coverage and the risks covered. Deprivation in relation to housing and education still affects a large number of Ecuadorians. Housing deprivation problems mainly concern quality, meaning that policies must be implemented to increase access to basic services (in particular drinking water and sewerage) and that fair private-sector mechanisms need to be created to improve housing conditions.

Despite the reduction in multidimensional poverty between 2006 and 2010, the level of inequality has not changed. Rural areas are still the poorest and the ratio between poverty there and at the national level has not improved. Persistent inequalities continue to affect indigenous people and Afro-Ecuadorians, and the level of poverty is still higher among women than men, especially when it comes to education and work. Households with high dependency ratios show higher levels of multidimensional poverty. This is a sign that it is important to promote and increase family support as a social protection mechanism. Besides this, poverty is severest in rural areas where more resources are needed owing to heterogeneity, dispersion and lack of basic infrastructure. Significant resources are required to alleviate multidimensional poverty, and better redistribution is needed. However, structural social and economic inequalities also need to be addressed in order to foster more equitable economic growth. Political will and social commitment are likewise necessary.

Finally, further research is needed to fathom the relationships between social protection, economic growth and multidimensional poverty alleviation. In the same way, additional dimensions and a comprehensive contextual analysis are important for analysing civil and political rights, as well as the rights of nature. New information therefore needs to be collected continually in order to improve the indicators used to measure each dimension.

ANNEX 1

A measure of multidimensional poverty in Ecuador

A multidimensional approach defines poverty by a vector of individual characteristics (Tsui, 2002). In general terms, a multidimensional poverty index can be presented as a function $P(X,z): Mxz \rightarrow R_{+}^{1}$, where $X \in M$ is the (n x m) attributes' matrix for $i=\{1,2,\ldots,m\}$ individuals and $k=\{1,2,\ldots,m\}$ dimensions and $z \in Z$ is the vector of thresholds (Bourguignon and Chakravarty, 2003). An index can be constructed following at least three different methodological approaches: the axiomatic approach, fuzzy sets theory and information theory (Maasoumi and Lugo, 2008). Following Bourguignon and Chakravarty (2003), a general decomposable multidimensional index that satisfies the necessary axioms can be defined as:

$$P(X,z)=\frac{1}{n}\sum_{i=1}^{n} f\left[\begin{array}{l} max\left\{0\ ;\left[1-\frac{x_{i,1}}{z_1}\right]\right\} \\ ,\ldots,max\left\{0\ ;\left[1-\frac{x_{i,k}}{z_k}\right]\right\}\end{array}\right] \qquad (1)$$

or in a general form as:

$$P(X,z)=\frac{1}{n}\sum_{i=1}^{n} f\left(X_{i,1}^{\wedge},\ldots,X_{i,m}^{\wedge}\right) \qquad (1.1)$$

Using a union approach to define $f(\cdot)$ and then a variation on the Foster, Greer and Thorbecke (1984) index to capture the severity of poverty, multidimensional poverty can be measured as follows:

$$P(X,z)=\left[\frac{1}{n}\sum_{i=1}^{n}\ \frac{1}{m}\sum_{k=1}^{m} X_{i,k}^{\wedge\ 2}\right] \qquad (2)$$

In (2), the dimensions are assumed to be non-substitutable but interrelated for the aggregate level of poverty, which is consistent with a rights-based perspective. At the individual level, more weight is given to dimensions with a higher deprivation gap, and subsequently more weight is assigned to those persons with higher levels of deprivation. This makes the index sensitive to poverty distribution. Poverty at the individual level is defined by $P_i(1/m)\sum_{k=1}^{n} X_{i,k}^{\wedge\ 2}$, with a maximum value of 1 (complete poverty) and a minimum of 0 (not poor).

In order to analyse each dimension, headcount ratios and deprivation gaps (deprivation levels) can also be estimated for different regions and demographic groups, where applicable. For the headcount ratio, anyone falling below the threshold on at least one variable is considered deprived (union approach) on the basis of the following rule:

$$deprived_{\ i}=\begin{cases} Yes;\ if\ \ X_{i,k}^{\wedge}>0 \\ No;\ if\ \ X_{i,k}^{\wedge}=0 \end{cases} \qquad (3)$$

The deprivation gap for each individual on each indicator is directly measured by $X_{i,k}^{\hat{l}}$, while the individual deprivation gap in each dimension is determined by the aggregation function $g_k(\cdot)$ as follows:

$$X_{i,k}=\frac{1}{p}\sum_{l=1}^{p} X_{i,k}^{l} \qquad (4)$$

The deprivation level $\left(X_{i,k}^{\wedge}\right)$ is measured using (4) in each dimension and is defined as the average deprivation level among the variables. Finally, the decomposable aggregate deprivation gap for each dimension is:

$$X_{k}^{\wedge}=\frac{1}{n}\sum_{i=1}^{n} X_{i,k}^{\wedge} \qquad (5)$$

Using (5), it is possible to decompose the deprivation gap by region and by demographic group, as follows:

$$X_{k}^{\wedge}=\sum_{s=1}^{q}\frac{n_s}{n}X_{k}^{\wedge(s)} \qquad (6)$$

where S is the set of groups $\{1,\ldots,q\}$, and .

$$\{1,\ldots,q\},\ \text{y}\ X_{k}^{\wedge(s)}=(1/n_s)\sum_{i_s=1}^{n_s} X_{i_s,k}^{\wedge}$$

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